Project Completion Report

Project Title: **Facilitating farmers' access to mechanisation and job creation through innovation**

Organisation: **Hello Tractor**

Project Coordinator: **Ken Lohento**

Date: 16/06/2020

This project completion report (project number 11023069N/11023098D) was prepared by **Folake Koutchade and Ken Lohento**.

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1.1 Description table

Name of Project Coordinator:	Ken Lohento
Partner(s)	Hello Tractor / Jehiel Oliver
Title of the Action:	Connecting Smallholder Farmers to Tractors Powered by Hello Tractor
Contract number:	11023069N/11023098D
Start date and end date of the Action:	14 months (with extension) end of project (15 April 2020)
Targeted beneficiaries:	Farmers (smallholder farmers), youth (booking agents), tractor owners
Final beneficiaries and/or target groups1 (if different) (including numbers of women and men):	25,000 smallholder farmers, at least 300 youth
Target region(s):	ACP
Country(ies) in which the activities take place:	Kenya; Nigeria

This project was launched following a call for proposals on information and communication technology (ICT)-enabled mechanisation that CTA launched to support activities of its ICT programme in particular and identify how digital innovations could support mechanisation and youth jobs.

The winning proposal selected was the project "Connecting Smallholder Farmers to Tractors Powered by Hello Tractor".

Knowledge has been generated to inform CTA's programme of activities and stakeholders about digitalisation opportunities to support mechanisation and create jobs for youth.

1.2 Executive summary of the activities implemented

With support from The Technical Centre for Agricultural and Rural Cooperation ACP-EU (CTA), through a call for proposal, Hello Tractor an agriculture technology social enterprise has been selected to implement ICT-enabled smallholder mechanisation services with the objective to create jobs for youth across Nigeria and Kenya over a one-year period.

Hello Tractor has a bold vision to create sustainable value for tractor owners and to radically transform how the smallholder agricultural ecosystem interacts with and derives value from technology. The enterprise connects tractor owners and smallholder farmers in Africa through a digital tractor sharing application. By creating equitable access to tractor services, the enterprise enables smallholder farmers to earn more and grow more, improving livelihoods and food security for their families and communities. The project has been implemented for 15 months from 12/02/2019 (date of signature) to 15/04/2020.

1.2.1 Main activities implemented

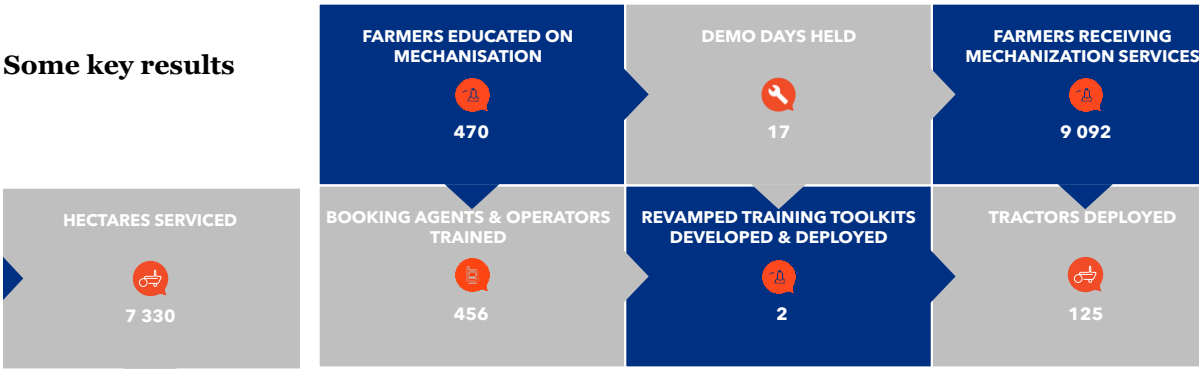
The following activities have been implemented in the framework of the project:

1. Identifying and training youth to serve as both booking agents and tractor operators
2. Providing youth workers with needed marketing materials such as flyers, promotional guides, installation steps, ID card, t-shirts and caps to make their work with farmers easier and engender trust within their communities
3. Carrying out tractor demo days within rural farming communities to help farmers better understand Hello Tractor and the benefits of mechanisation
4. Engaging Hello Tractor contractors on a weekly basis to ensure that bookings sent by agents are being paired to tractors without delay
5. Knowledge-sharing activities (workshops, articles).

1.2.2 Brief overview of main achievements

As result of this project, more than 5,000 smallholder farmers who needed mechanisation services within Nigeria and Kenya, have been reached and opportunities to earn an income serving as booking agents and tractor operators have been created for over 100 youth. Hello Tractor has also been able to significantly improve on both its technology and its service delivery models to ensure that smallholder farmers are receiving the highest quality of service every time tractors are deployed to provide service.

Overall, through partnership with CTA, Hello Tractor has been able to execute a digital transformation strategy coupled with targeted community and farmer outreach, incorporating lessons learned over several years, in order to improve the offer in the market. For the smallholder farmers, they are now better aware of the ease with which they can gain access to mechanisation services because of the increased brand awareness activities the project carried out at the farmer level, while booking agents and operators on the other hand are now better equipped with the skills and tools that they need to deliver quality service to smallholder farmers.



1.3 Project background

According to a study, the world food production needs to increase by between 26 to 70% to cover the global food demand by 2050.[1] Least developed countries may need to double their

[1] Mitchell C. Hunter Richard G. Smith Meagan E. Schipanski Lesley W. Atwood David A. Mortensen (2017) Agriculture in 2050: Recalibrating Targets for Sustainable Intensification

production.[2] This pressing need is, among others, motivated by the constantly rising population, which in Africa will double by 2050, reaching around 2.5 billion. The current African agricultural productivity levels need to be raised significantly. Improving food production in Africa is also indispensable for attempting to reduce the high food import bill of Africa, which might rise from about US$35 billion in 2015, to over US$115 million by 2050.[3]

In parallel to any sustainable crop intensification strategy, there is a need to improve land cultivation practices, for example by leveraging on ICT-enabled mechanisation services. Africa has about 60% of the world's arable land (600 million ha), but this important asset is still largely uncultivated and under-cultivated. The lack of access to farm mechanised machinery is one of the reasons that explain this preoccupying observation. Indeed, while there are, for example, in the UK 883 tractors per 1,000 farmers, in sub-Saharan Africa, this statistic is at 2 per 1,000 farmers.[4] Several reasons may explain the lack of availability of tractors. These include the costs of tractors that is beyond the financial capacity of most smallholder farmers, the lack of technical know-how on the use of these tractors by farmers, just to cite a few.

Fortunately, new solutions that can facilitate the leasing of tractors among smallholder farmers and cooperatives, leveraging on ICT use are currently available globally, and on the continent. Digital technologies may favour an improved management of tractors, for example when geo-localisation devices are integrated on the tractors. Opportunities for youth employment may also be generated in the deployment of these schemes.

1.4 Impacts and outcomes

Due the recent end of the project, impacts have not yet been quantified. Meanwhile, according to the description of the project the followings were expected as outcomes and impacts:

[2] FAO (2009), Global agriculture towards 2050

[3] AfDB, Feed Africa Strategy, 2016

[4] Juma (2011), the New Harvest.

Activity	Outcome indicators	Impacts indicators
Component 1: Link Smallholder Farmer Demand for Mechanisation Services to Tractors Powered by Hello Tractor Technology		
Farmer product demonstrations and demand aggregation	Educated farmers understand mechanisation solutions and use it for revenue generating activities	Increased labour productivity Expansion of the area under cultivation % increase in yield Improved profits and reduced costs
Deploy tractors to meet farmer demand	Customer demand met	Increased land productivity (especially through improved timeliness of operations)
Component 2: Train Booking Agents and Operators with Requisite Skills to Deliver Quality Mechanisation Service Provision to Smallholder Farmers		
Develop and disseminate collateral for booking agents and operators	Improved customer support services Increased technology adoption	Increased farmland cultivation and youth employment
Train booking agents and operators to provide high quality service to smallholder farmers	Trained booking agents and operators provide high quality tractor service and generate increased revenues Ensures continuity of services and repeat customers	Increased farmland cultivation and youth employment
Component 3: Knowledge sharing		
Organise two public workshops	Awareness raised on the project Knowledge shared on the project's results	Increased knowledge on the use of ICTs to improve agricultural mechanisation in country targeted

As result of the execution of the above activities, the following outcomes related to each target beneficiaries are noticed:

1.4.1 Farmers

By carrying out tractor demos and other awareness activities across various farming communities, an increase in the number of farmers requesting for services was noticed, specifically during the dry season where requests for tractor services previously had a tendency to decline since farmers would rely more on animal labour because they have a false impression that it is cheaper compared to the use of tractors and or were just not available to them.

Farmers were educated through each demos days on how mechanisation can boost their productivity as well as reduce their costs, and practicalised its usage on the farm, comparing the time it took to complete a harrow job with a tractor to the time it takes animals to complete the same job.

For example, after a demo day carried out in a community within Kano State where many of the farmers still depend on manual labour to farm their fields, over 250 of them signed up to

receive mechanisation services and expressed excitement at the fact they were able to increase their productivity by planting at least 2 days earlier than they would have should they have relied on animal labour. These farmers have also begun requesting for tractor services for the wet season which indicates a shift from reliance on animal labour.

1.4.2 Booking agents

Providing the booking agents with more intensive and tailored training, giving them merchandise to support their work with farmers and connect them to each other via WhatsApp group has caused an overall increase in their levels of engagement. They indicated that they are now a lot more confident entering new communities to speak with farmers who often previously doubted their genuineness because they were not adequately branded. They also share photos from their field engagement on the WhatsApp group from time to time, applauding each other for good work done and asking questions among themselves whenever they are unclear about things.

1.4.3 Tractor owners

The regular and proactive engagement of the tractor owners encouraged feature adoption and usage. The customers have testified to saving time to deployment of tractors, increase in revenue from the farmers paired to their tractors, and reduced cost of servicing farmers.

As an outcome of the increased engagement of Hello Tractor with all contractors, it was experienced customers who are more willing to work with smallholder farmers and deploy tractors to the farmers promptly thereby strengthening the mechanisation ecosystem and increasing agricultural productivity.

1.5 Outputs and key activities

The project carried out activities under three components which are:

- **Component 1:** Link smallholder farmers to mechanisation services powered by Hello Tractor technology
- **Component 2:** Train booking agents and operators with requisite skills to deliver quality service to smallholder farmers
- **Component 3:** Knowledge-sharing workshops

1.5.1 Component 1: Link smallholder farmers to mechanisation services powered by Hello Tractor technology

Activity 1.1: Tractor/farmer demo days and demand aggregation

Hello Tractor hosted a total of 17 demo days across Nigeria and Kenya through the project period. These demos took place specifically within Oyo, Kwara, Adamawa & Kano states in Nigeria, and then within Busia, Homabay, Eldoret, and Kisumu counties in Kenya.

The demos were aimed at helping farmers; understand the need and importance of mechanisation, appreciate the necessity of booking agents in aggregating demand and helping them increase their access to tractor services, as well as getting to know about Hello Tractor and the services it offers through its technology. There were a total of 470 farmers who participated in these demo days, many of whom expressed excitement about the opportunities offered by the project to increase cost savings and speed of farming that mechanisation could potentially afford them. Hello Tractor made sure to have the participating farmers connected to booking agents during each demo to make certain that they have numbers they can easily call whenever they need to request for mechanisation services.

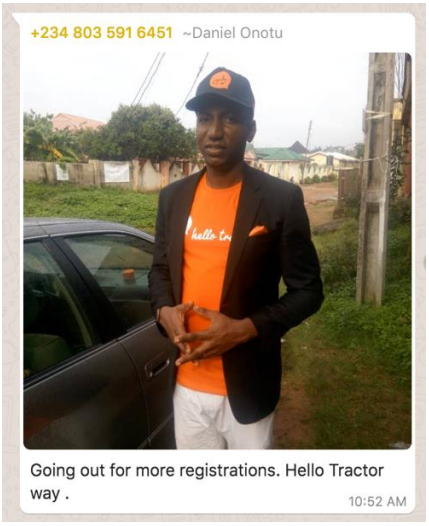
Activity 1.2: Deploy tractors to meet farmer demand

Through the network of booking agents trained, the project has been able to reach an aggregate of 9,092 smallholder farmers across Nigeria and Kenya. The vast majority of these farmers served came from Hello Tractor's engagement in Nigeria due to the fact that they have already captured about 80% of all commercial tractors sold into the country, hereby giving them the opportunity to more readily meet the demands for mechanisation services for farmers within the region. By actively engaging contractors on the platform, in the framework of the project, a total of 125 tractors were deployed to service these farmers.

1.5.2 Component 2: Train booking agents and operators with requisite skills to deliver quality service to smallholder farmers

Activity 2.1: Develop and disseminate collateral for booking agents and operators

To enable the booking agents and operators to engage more effectively with farmers, it was created collateral that was deemed necessary for their success based on feedback received from them on how best the project can support their work. It was printed a total of 200 t-shirts, 250 facecaps, 100 identification cards and 10,000 flyers which were delivered to a total of 456 booking agents.




Activity 2.2: 50 Booking agents and operators trained

A series of trainings organised, allowed to onboard a total of 456 booking agents and 34 operators, of whom 89% are youth, and are now earning additional income from the job opportunities created for them.


1.5.3 Component 3: Knowledge-sharing workshops

At the conclusion of one-year of the project, Hello Tractor organised one knowledge-sharing workshop (instead of two due to the COVID-19 outbreak) themed "Driving Agricultural Productivity with Cutting Edge Technologies" that was held on the 4th of February 2020 at Work and Connect Hub, Jabi, Abuja. The workshop, which centred around exchanging knowledge around the outputs and outcomes from the project over the last year and examining the ways through which Internet of Things is enabling mechanisation in agriculture in Africa, brought together 70 participants including key stakeholders and decision-makers, financial institutions, agricultural foundations, mechanisation service providers, booking agents/demand aggregators as well as farmer leaders in attendance.

It was a highly engaging event that provided invitees with an opportunity to share, network and brainstorm on the way forward as it relates to improving farmer's productivity on the farm through the use of digital technology.

Summary of outputs

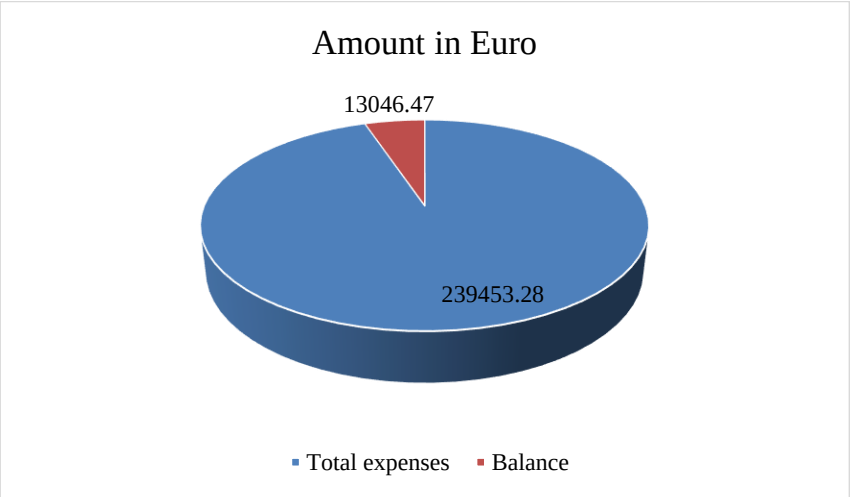
Activity	Output Indicators
Component 1: Link Smallholder Farmer Demand for Mechanisation Services to Tractors Powered by Hello Tractor Technology	
Farmer product demonstrations and demand aggregation	470 of farmers educated on mechanisation solutions 17 demo days organised across Nigeria and Kenya through the project period.
Deploy tractors to meet farmer demand	125 of tractors deployed 9,092 farmers reached via booking agents 1 tractor owners customers onboarding kit
Component 2: Train Booking Agents and Operators with Requisite Skills to Deliver Quality Mechanisation Service Provision to Smallholder Farmers	
Develop and disseminate collateral for booking agents and operators	Training toolkit: a total of 200 t-shirts, 250 facecaps, 100 identification cards and 10,000 flyers
Train booking agents and operators to provide high quality service to smallholder farmers	456 of trained booking agents and 34 operators 400 of youth trained as booking agents and 34 operators 9,092 of customers serviced with fast and reliable service
Component 3: Knowledge sharing	
Organise two public workshops	One workshop organised: 70 number of participants in the workshops (50 planned)

1.6 Analysis of business case/scalability

The initiative is fully based on business services of Hello Tractor. Therefore, its business case is fully in place. The project has helped the company to scale-up their services, while facilitating access to mechanisation for farmers and helping CTA to promote the use of digital technologies to support mechanisation, especially land preparation. It is expected that other businesses will emerge in ACP countries, offering this type of services.

1.7 Financial overview

From CTA's contribution to the project, which is 252 500 euro, 95% of the budget has been spent. Due to the COVID-19 pandemic, the full amount was not possible to spent. Two final workshops were planned to be held in Nigeria and Kenya but only one has been organised (in Nigeria). The figure below shows a summary of total expenditure.



2 Lessons learned

2.1 Possible changes that occurred during the period covered by the report

One of key activities for this project was to implement both interactive voice response (IVR) and SMS gateway systems that allow to engage with farmers and booking agents within the networks on-and-off the farming seasons; this would keep them duly informed and updated once they place bookings through the booking app and collect feedback from them on the quality of services they receive from Hello Tractor as well as tractor operators who provide services on the farm. While the project has been successful in implementing the SMS gateway and using it to engage actively with booking agents, it was quickly found out that these digital means of capturing farmer's feedback are not very realistic for the average farmer. The test was done by sending out messages to 100 farmers who received service and asking them to rate the quality of the service they received on their farms on a 1- 5 scale. Not a single farmer responded to the message sent even after it was asked their booking agents to give them a nudge to respond. This indicated that collecting any kind of feedback from farmers through digital means might not be the most ideal way forward. To mitigate this, it was decided to instead set up a call centre that will provide a more human approach to feedback collection from farmers and booking agents, to enable capture the needed details that will help improve on the quality of services rendered to the farmer. The project began by utilising the customer service and customer success agents to develop scripts for engaging these customers and provide the initial outreach.

2.2 Constraints and problems encountered

When it comes to providing mechanisation services to smallholder farmers across sub-Saharan Africa, one of the major constraints faced has always been the tractor deficit that exists across the sub-continent. In Nigeria alone for example, there's a tractor deficit of over 750,000 with only eight tractors currently available per 100km2 of arable land which is a far cry from the global average of 200 tractors per the same 100km2 of arable land. The implication of this is that during peak planting seasons, there are not enough tractors available to service farmers in a timely manner for them to plant on time. Hence farmers sometimes still have to rely on manual labour in the absence of readily available tractors to work on their farm. The project has experienced situations where the booking agents aggregate demand for farmers but are sometimes not able to get tractors in time to service the farmer's land. This could lead to frustrations on both the farmer and booking agent end, and may sometimes discourage them from wanting to try again the following year. Even though Hello Tractor outlined and implemented a few ways to try to make the available tractors within the markets as much as possible, one of which is through route planning for tractors, that is still not good enough if

there's a huge deficit in the number of tractors available. Hello Tractor has been thinking creatively about ways through to solve this constraint and is currently in the middle of piloting a model, coined the "Pay As You Go" tractor financing model for tractor ownership, across Kenya and Nigeria. The funding will provide loans to contractors for tractor purchases and auto-deduct their loan repayments from their completed jobs. This approach significantly de-risks the loan while reducing the need for tractor down payments. Hypothetically this will deepen the reach into markets, enabling low-income entrepreneurs to obtain financing for tractors to service the smallholders within and outside of their community who are in dire need of mechanisation services. In addition, the management of a few tractors as a pilot is in consideration to better control the supply and deployment of tractor services to farmers.

2.3 Sustainability measures

In order to maintain the momentum, the project has built by touching the lives of thousands of smallholder farmers, creating jobs for youth serving as booking agents and tractor operators as well as creating sustainable businesses for Hello Tractor's contractors. The focus will be on two specific sustainability measures: building upstream relationships within supply-side manufacturers and dealers while leveraging strategic partnerships to provide demand-side opportunities through DFIs, NGOs and other social actors. For the supply-side engagement, Hello Tractor already has factory deals in the works with the likes of John Deere and Kubota. The plan is to engage with other top manufacturers such as AgCo, Case, New Holland, Mahindra, TAFE, Claas, LS, Landini, and Steyr whom it believes will help broaden the reach across emerging markets. The enterprise will approach these potential customers by engaging their regional leadership teams and aligning the technology with their growth objectives. Primarily, the enterprise would be looking at ways through which they could scale their pay-as-you-go model by working with these manufacturers to balance tractor deficits across the markets where they operate. As previously mentioned, Hello Tractor is currently in the middle of piloting the model across Kenya and Nigeria by financing 50 tractors that would be deployed for the planting season. The enterprise anticipates taking the learnings from the pilot to make changes where necessary and scale the model. For the demand-side opportunities, they will continue to work on existing and new approaches to capturing demand and ensuring the productivity and profitability of smallholder farmers, booking agents and tractor operators. Recently the implementation of hub models begun across Kano and Jigawa states in Nigeria, whereby farmers have a central location where they can go to request for mechanisation services or even purchase high quality farm inputs as needed. Positive results are already being seen from doing this alongside mural paintings, bus tours and tractor demos. Hence, the plan is to take this model into farming communities across all the various countries where Hello Tractor works. This will make for a more streamlined demand aggregation process that lets properly plan tractor routes for increased cost savings for farmers and higher profits for tractor contractors.

3 Annexes

3.1 Contribution to the corporate logframe:

The project directly contributes to the corporate logframe as per following:

Intervention logic	Indicator	Target	Value achieved
2018_CLF OO1.1	Impact indicator: Number of young service providers who earn revenues from mechanisation services	50	405
2018_CLF SO2.1.1	Outcome indicator: Improved and adapted digital (suits of Apps) solutions for mechanisation	1	1
2018_CLF SO2.1.3	Outcome indicator: Number of farmers who purchase or benefit from the mechanisation service	5,500	9,092
2018_CLF R2.1.3	Outcome indicator: Areas plough in hectare		7,330
2018_CLF SO2.1.5	Outcome indicator: Number of young service providers who offered mechanisation services	50	405

3.2 List of partners

Hello Tractor partnered mainly with two organisations at national level to access more tractors and to install the devices on those tractors: TechnoServe and John Deere.

3.3 List of knowledge products

Articles	Links
Hello Tractor and CTA launch partnership to support smallholder farmers access mechanisation	https://bit.ly/3d6yY4A
'Uber-ising' access to tractors for improved productivity in Nigeria and Kenya	https://bit.ly/2zh7ESt
Agritech startup, Hello Tractor partners with CTA to expand services across Nigeria and Kenya	https://bit.ly/3c1RDNg
Agri-tech startup Hello Tractor to expand across Nigeria, Kenya	https://bit.ly/2A2pFUC

3.4 Outcome / Impact stories (optional)

Stakeholder	Testimonies
Danbaba Ibrahim (Booking Agent) Kano State, Nigeria	"My name is Danbaba Ibrahim, I reside in the village, the name of my village is Garrun Babba, I do a lot of other business, but at the moment this is my major source of revenue. I have a large family size and every member depends on me and we are all leaving happily. When I got to know about this HT business, I was so comfortable to introduce it to my family members and also my wife in specific to come to join me in this business. What makes me succeed in this business is because I took it very seriously and also with sincerity. My wife is an academic, a booking agent and also a farmer, she helps me in organising women farmers within our community. I have achieved a lot in this business of Hello Tractor.
Jimoh Sanyaolu, (Tractor Operator) Nasarawa State, Nigeria	"With Hello Tractor now you can stay in your house to control your tractor without going outside and know the number of hectare cover by your tractor."

3.5 Other interesting links

Titles	URLs
Nigeria's Hello Tractor in AI, blockchain partnership with IBM Research	https://bit.ly/2TAzFLM
'Uber of tractors' moves to bridge agricultural mechanisation gap in African farms	https://bit.ly/2TysLGw
Hello tractor conducts tractor demo for internally displaced farmers in Yola, Nigeria	https://bit.ly/2TAaw3H

3.6